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10/084,629	02/27/2002	Kaga Hasegawa	5640-00500	3684

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EXAMINER	
GORMAN, DARREN W	
ART UNIT	**PAPER NUMBER**
3752	

DATE MAILED: 11/03/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/084,629	Applicant(s) HASEGAWA, KAGA
	Examiner Darren W Gorman	Art Unit 3752

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____ .

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-24* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-10 and 12-24* is/are rejected.

7)☒ Claim(s) *11* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *06 October 2003* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

DETAILED ACTION

Response to Amendment

1. This communication is in response to the amendment filed October 6, 2003, in paper #6. Applicant's request to cancel claims 25 and 26 is acknowledged. Accordingly the aforementioned claims have been cancelled. Claims 1-24 are currently pending.

Drawings

2. The replacement drawings for Figures 2 and 4 were received on October 6, 2003. These drawings are acceptable.

Claim Rejections – 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4. Claims 1 and 4-8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wang et al., USPN 5,725,153.

Wang discloses a fluid spraying nozzle comprising an outer conduit (2), and an inner conduit (1) positioned within at least a portion of the outer conduit such that a gap (6) is formed between the outer conduit and the inner conduit (see Figures 1-2), wherein a back portion (8) of the outer conduit is coupled to a pressurized gas supply source (see Figure 1; and column 5, lines

26-27), and wherein a back portion (5) of the inner conduit is coupled with a fluid supply source (see Figure 1; and column 5, lines 21-23), the fluid supply source being configured to supply a fluid, the fluid comprising a liquid, and wherein a front portion (7) of the inner conduit is configured to allow ejection of the fluid during use, wherein the inner conduit and the outer conduit are composed of a flexible material (see column 5, lines 27-33), and wherein the front portion of the inner conduit and the front portion (40) of the outer conduit move when gas is ejected from the outer conduit (see column 5, lines 48-67, and column 6, lines 1-14), and wherein the fluid is capable of being pulled from the fluid supply source through the inner conduit when gas is ejected from the outer conduit such that the fluid is mixed with the ejected gas. Wang further discloses that the outer and inner conduits may be composed of a flexible synthetic resin (see column 5, lines 27-33), and Wang also discloses that the fluid supplied from the fluid supply source can include a solvent capable of cleaning (methanol) (see column 7, lines 63-64).

However, Wang teaches a fluid pump for delivering the fluid to the inner conduit, rather than expressly teaching the fluid supply source as being configured to supply specifically a "non-pressurized" fluid. Wang also does not expressly teach the pressurized gas supply source as specifically comprising a compressor supplying compressed air. Further, Wang does not expressly teach the fluid supply source as supplying abrasive particles, or a mixture of a liquid and abrasive particles.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to eliminate the fluid pump of Wang so that the device is configured to supply a non-pressurized fluid, since the structure as disclosed and shown by Wang would aspirate non-

pressurized fluid through the inner conduit, while not necessarily requiring pressurization of the fluid. It should also be noted as a matter of obviousness that the concept of aspirating non-pressurized fluid in the spray nozzle art is old and well-known, and while fluid pressurization from a fluid pump, as discussed by Wang, would enhance the flow of fluid through the nozzle outlet, the nozzle outlet structure of Wang (see Figure 2) being the same as the nozzle outlet structure of the present invention (see Applicant's Figure 3) would clearly function to aspirate non-pressurized fluid if the fluid pump were eliminated.

Further, since it is conventional practice to use an air compressor for aspirating a fluid in a spray apparatus, and any type of inert gas could be used for aspiration, it would have been obvious to one of ordinary skill in the art at the time the invention was made to use a compressor for supplying compressed air to the outer conduit of Wang, since air is a free and unlimited resource.

Still further, since it is conventional practice to use an elongated flexible conduit for spraying liquids, abrasives, or combinations thereof, it would have been obvious to one of ordinary skill in the art at the time the invention was made to place any user selected fluid into the fluid supply source of Wang, in order to perform various types of user selected operations (i.e. liquid atomizing applications, sand-blasting, application of paint containing abrasives, etc.).

5. Claims 2-3, 9-10, and 12-24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wang et al., USPN 5,725,153, in view of Hasegawa, Japanese Patent Publication H11-123350.

Regarding claim 2, Wang, as modified and discussed above, discloses all of the claimed

elements as set forth in claim 1, however Wang does not disclose a balancing member coupled to the outer conduit, wherein the balancing member is configured to control movement of the front portion of the outer conduit and the front portion of the inner conduit during use.

Hasegawa discloses a fluid spray apparatus with a balancing member (17) coupled to a front portion of a flexible nozzle conduit (12) (see Figures 1-2, and 4).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to couple a balancing member, as taught by Hasegawa, to the flexible conduit of Wang, in order to precisely control the oscillatory wave motion of the flexible conduit.

Regarding claim 9, it would further have been obvious to one of ordinary skill in the art at the time the invention was made to use a plurality of balancing members in order to further control the oscillatory wave motion of the flexible conduit.

Regarding claims 3, 10, and 12, Wang discloses all of the claimed elements as set forth in claim 1, discussed above, however Wang does not disclose a regulating member positioned proximate to the outer conduit, wherein the regulating member is configured to limit movement of the front portion of the outer conduit and the front portion of the inner conduit during use, and wherein the regulating member is an annular member with a substantially conical shaped portion that substantially surrounds the front portion of the outer conduit and the front portion of the inner conduit.

Hasegawa discloses a fluid spray apparatus having a cylindrical regulating member (37) with a substantially conical front portion (38), wherein the regulating member is positioned

proximate to a flexible nozzle conduit (12) and surrounds the front portion of the flexible nozzle conduit, and is configured to limit movement of a front portion of a flexible nozzle conduit (see Figures 1-2, and 4).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to include the regulating member, as taught by Hasegawa, with the oscillating flexible nozzle conduit arrangement of Wang, in order to precisely limit the movement of the flexible nozzle conduits as well as to surround and protect the flexible conduits from possible damage.

Regarding claims 13-15 and 18-20, Wang discloses a fluid spraying apparatus comprising a body (10), a fluid spraying nozzle, comprising an outer conduit (2), and an inner conduit (1) positioned within at least a portion of the outer conduit such that a gap (6) is formed between the outer conduit and the inner conduit (see Figures 1-2), wherein a back portion (8) of the outer conduit is coupled to a pressurized gas supply source (see Figure 1; and column 5, lines 26-27), that pressurized gas supply source comprising, for example, an inert aerosol gas such as argon (see column 7, lines 62-63), and wherein a back portion (5) of the inner conduit is removably coupled (via a threaded portion, as seen in Figure 1) with a fluid supply source (see column 5, lines 21-23), the fluid supply source being configured to supply a fluid, the fluid comprising, for example, a liquid solvent capable of cleaning (methanol) (see column 7, lines 63-64), and wherein a front portion (7) of the inner conduit is configured to allow ejection of the fluid during use, wherein the inner conduit and the outer conduit are composed of a flexible material (see column 5, lines 27-33), and wherein the front portion of the inner conduit and the front portion (40) of the outer conduit move when gas is ejected from the outer conduit (see column 5, lines

48-67, and column 6, lines 1-14), and wherein the fluid is capable of being pulled from the fluid supply source through the inner conduit when gas is ejected from the outer conduit such that the fluid is mixed with the ejected gas.

However, Wang teaches a fluid pump for delivering the fluid to the inner conduit, rather than expressly teaching the fluid supply source as being configured to supply specifically a "non-pressurized" fluid. Wang also does not expressly teach that the nozzle is disposed in the body, and that the movement of the front portion of the inner conduit and the front portion of the outer conduit occur within the body. Further, Wang does not disclose a regulating member configured to limit movement of the front portion of the outer conduit and the front portion of the inner conduit during use. Still further, Wang does not disclose a balancing member coupled to the outer conduit, wherein the balancing member is configured to control movement of the front portion of the outer conduit and the front portion of the inner conduit during use.

Hasegawa discloses a fluid spray apparatus having a body, wherein the body includes a cylindrical regulating member (37) with a substantially conical front portion (38), wherein the regulating member is positioned proximate to a flexible nozzle conduit (12) and surrounds the front portion of the flexible nozzle conduit, and is configured to limit movement of a front portion of a flexible nozzle conduit (see Figures 1-2, and 4). Hasegawa also discloses a balancing member (17) coupled to a front portion of a flexible nozzle conduit (12) (see Figures 1-2, and 4).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to eliminate the fluid pump of Wang so that the device is configured to supply a non-pressurized fluid, since the structure as disclosed and shown by Wang would aspirate non-

pressurized fluid through the inner conduit, while not necessarily requiring pressurization of the fluid. It should also be noted as a matter of obviousness that the concept of aspirating non-pressurized fluid in the spray nozzle art is old and well-known, and while fluid pressurization from a fluid pump, as discussed by Wang, would enhance the flow of fluid through the nozzle outlet, the nozzle outlet structure of Wang (see Figure 2) being the same as the nozzle outlet structure of the present invention (see Applicant's Figure 3) would clearly function to aspirate non-pressurized fluid if the fluid pump were eliminated.

Further, it would have been obvious to one of ordinary skill in the art at the time the invention was made to include the regulating member, as taught by Hasegawa, with the oscillating flexible nozzle conduit arrangement of Wang, in order to precisely limit the movement of the flexible nozzle conduits. With such an arrangement, the flexible nozzle conduit arrangement of Wang would then be disposed in the body, wherein the front portion of the inner conduit and the front portion of the outer conduit would move within the body, therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made to have the front portion of the inner conduit and the front portion of the outer conduit disposed in the body and moving within the body during use, in order to surround and protect the flexible conduits from possible damage. It would further have been obvious to one of ordinary skill in the art at the time the invention was made to couple a balancing member, as taught by Hasegawa, to the flexible conduit of Wang, in order to precisely control the oscillatory wave motion of the flexible conduit.

Regarding claim 16, Wang, as modified and discussed above, discloses all of the claimed limitations as set forth in claim 13, however Wang does not expressly disclose the pressurized gas supply source as comprising a compressed air source.

Since it is conventional practice to use an air compressor for aspirating a fluid in a spray apparatus and any type of inert gas could be used in aspiration, it would have been obvious to one of ordinary skill in the art at the time the invention was made to use a compressor for supply compressed air to the outer conduit of Wang, since air is a free and unlimited resource.

Regarding claim 17, Wang, as modified, discloses all of the claimed limitations as set forth in claim 13, however Wang does not expressly disclose a valve coupled to the fluid supply source and the inner conduit, wherein the valve is configured to control movement of fluid from the fluid supply source to the inner conduit.

Since it is conventional practice to include a flow control valve between a fluid supply source and the outlet end of a nozzle, it would have been obvious to one of ordinary skill in the art at the time the invention was made to include a conventional flow control valve between the fluid supply source and the outlet end of the flexible nozzle conduit of Wang, in order to control and/or adjust the flow rate of the fluid.

Regarding claims 21 and 24, Wang discloses a fluid spraying apparatus comprising a body (10), a fluid spraying nozzle, comprising an outer conduit (2), and an inner conduit (1) positioned within at least a portion of the outer conduit such that a gap, performing as a gas flow path (6), is formed between the outer conduit and the inner conduit (see Figures 1-2), wherein a

back portion (8) of the outer conduit is coupled to a pressurized gas supply source (see Figure 1; and column 5, lines 26-27), and wherein a back portion (5) of the inner conduit is coupled with a fluid supply source (see column 5, lines 21-23), the fluid supply source being configured to supply a fluid, the fluid comprising a liquid, and wherein a front portion (7) of the inner conduit is configured to allow ejection of the fluid during use, wherein the inner conduit and the outer conduit are composed of a flexible material (see column 5, lines 27-33), and wherein the front portion of the inner conduit and the front portion (40) of the outer conduit move when gas is ejected from the outer conduit (see column 5, lines 48-67, and column 6, lines 1-14), and wherein the fluid is capable of being pulled from the fluid supply source through the inner conduit when gas is ejected from the outer conduit such that the fluid is mixed with the ejected gas. It should be noted that Wang discloses a fluid pump delivering the fluid to the inner conduit, however the arrangement of the inner and outer conduits of Wang, as shown in Figure 2, with the front portion of the inner conduit extending just beyond the front portion of the outer conduit, facilitates a negative pressure or Venturi effect about the front portion of the inner conduit, wherein the fluid is further drawn or pulled through the inner conduit from the fluid supply source.

Although Wang teaches the fluid pump delivering the fluid to the inner conduit, Wang does not expressly teach the fluid supply source as being configured to supply specifically a "non-pressurized" fluid. Wang also does not expressly teach that the nozzle is disposed in the body, and that the movement of the front portion of the inner conduit and the front portion of the outer conduit occur within the body. Further, Wang does not disclose a regulating member

configured to limit movement of the front portion of the outer conduit and the front portion of the inner conduit during use.

Hasegawa discloses a fluid spray apparatus having a body, wherein the body includes a cylindrical regulating member (37) with a substantially conical front portion (38), wherein the regulating member is positioned proximate to a flexible nozzle conduit (12) and surrounds the front portion of the flexible nozzle conduit, and is configured to limit movement of a front portion of a flexible nozzle conduit (see Figures 1-2, and 4).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to eliminate the fluid pump of Wang so that the device is configured to supply a non-pressurized fluid, since the structure as disclosed and shown by Wang would aspirate non-pressurized fluid through the inner conduit, while not necessarily requiring pressurization of the fluid. It should also be noted as a matter of obviousness that the concept of aspirating non-pressurized fluid in the spray nozzle art is old and well-known, and while fluid pressurization from a fluid pump, as discussed by Wang, would enhance the flow of fluid through the nozzle outlet, the nozzle outlet structure of Wang (see Figure 2) being the same as the nozzle outlet structure of the present invention (see Applicant's Figure 3) would clearly function to aspirate non-pressurized fluid if the fluid pump were eliminated.

Further, it would have been obvious to one of ordinary skill in the art at the time the invention was made to include the regulating member, as taught by Hasegawa, with the oscillating flexible nozzle conduit arrangement of Wang, in order to precisely limit the movement of the flexible nozzle conduits. With such an arrangement, the flexible nozzle conduit arrangement of Wang would then be disposed in the body, wherein the front portion of the inner

conduit and the front portion of the outer conduit would move within the body, therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made to have the front portion of the inner conduit and the front portion of the outer conduit disposed in the body and moving within the body during use, in order to surround and protect the flexible conduits from possible damage.

Regarding claims 22-23, the apparatus shown by Wang, as modified by Hasegawa above, is capable of performing the method or steps of applying a fluid to a surface, however Wang discloses a fluid pump delivering the fluid to the inner conduit, rather than expressly teaching the step wherein "the passage of gas through the outer conduit pulls fluid from the fluid supply source through and out of the inner conduit". Wang also does not expressly disclose the surface as comprising a vehicle surface.

Since the arrangement of the inner and outer conduits of Wang, as shown in Figure 2, with the front portion of the inner conduit extending just beyond the front portion of the outer conduit, facilitates a negative pressure or Venturi effect about the front portion of the inner conduit, and the distance between the front portions of the inner and outer conduit of Wang is axially adjustable (see column 6, lines 47-57), it would have been obvious to one of ordinary skill in the art at the time the invention was made to adjust the gas flow of Wang, and/or adjust the axial distance between the front portions of the inner vs. the outer conduit appropriately so as to aspirate the fluid from the fluid supply source through the inner conduit thereby making the fluid pump unnecessary, since aspirating fluids using gas pressure is conventional in the art. It would further have been obvious to one of ordinary skill in the art at the time the invention was

made to use the apparatus of Wang, as modified, on any user selected surface, including a vehicle surface, in order to clean or coat that surface with a user selected fluid, as is common in the art.

Allowable Subject Matter

6. Claim 11 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Response to Arguments

7. Applicant's arguments filed on pages 13-17 of paper #6 with regard to the claims as not being obvious over Wang, or Wang in view of Hasegawa pursuant to U.S.C. 103(a), have been fully considered but they are not persuasive.

As discussed above in greater detail, it is well known to provide a pressurized or a non-pressurized fluid source to a fluid spraying apparatus. While pressurization of the fluid of Wang via a fluid pump enhances the flow of fluid through the nozzle outlet, the structure as taught by Wang would not require pressurization of the fluid, since the nozzle outlet arrangement would aspirate the fluid through the inner conduit due to the negative pressure region at the nozzle tip caused by the passage of pressurized gas through the outer conduit. Further, as discussed above, the nozzle outlet structure of Wang (see Figure 2) being the same as the nozzle outlet structure of the present invention (see Applicant's Figure 3) would clearly function to aspirate non-pressurized fluid if the fluid pump were eliminated. Therefore, eliminating the fluid pump,

thereby providing a non-pressurized fluid source, would be an obvious variation of what is taught by Wang.

Conclusion

8. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Darren W Gorman whose telephone number is 703-306-4205. The examiner can normally be reached on M-F 8:00-4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael Mar can be reached on 703-308-2087. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0861.

Darren W Gorman
Examiner
Art Unit 3752

DWG 10/29/03
DWG
October 29, 2003

Michael Mar 10-31-03
MICHAEL MAR
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